

A REVIEW OF THE WEST INDIAN SPECIES OF *MIMAPSILOPA* CRESSON  
(DIPTERA: EPHYDRIDAE)

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*Abstract.*—Five species of *Mimapsilopa* are reported from the West Indies (including Trinidad and Tobago), including three that are new: *M. cubensis* (Cuba, Pinar del Rio: Soroa (2 km NW, 22°48.6'N, 83°1.0'W); *M. dominicana* (Dominican Republic, La Vega: Salto Guasara (near Jarabacoa; 19°04.4'N, 70°42.1'W; 680 m); and *M. bacoa* (Dominican Republic, La Vega: Jarabacoa (5 km S; 19°05.8'N, 70°36.5'W; 640 m). Two of the new species, *M. cubensis* and *M. dominicana*, are sister species, forming a monophyletic lineage within *Mimapsilopa* that is characterized by the wide face and greatly enlarged antenna of the male. The third new species is closely related to *M. cressoni* Lizarralde de Grosso.

*Key Words:* Review, Diptera, Ephydridae, shore flies, *Mimapsilopa*, *M. cubensis*, *M. dominicana*, *M. bacoa*, West Indies

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Sexual dimorphism in shore flies, although evident, is not usually expressed phenotypically in overt manners (Zatwarnicki 1994). Frequently the only distinction and appearance of sexual dimorphism are in structures of the male and female terminalia. In two species of *Mimapsilopa* Cresson, however, both undescribed and from the Greater Antilles, the males have greatly enlarged antennae and a widened face. These features, coupled with the flies' generally shiny black appearance, make them among the more attractive and interesting of shore flies. Herein we describe these two unusual species and a third species that is closely related to *M. cressoni* Lizarralde de Grosso within the context of a revised generic description and a review of the other species of *Mimapsilopa* that occur on islands of the eastern Caribbean. We are also providing several new characters that were discovered in our study from

structures of the male terminalia, which are fully illustrated.

*Mimapsilopa* is not a commonly used generic name even among shore-fly workers. Cresson (1941) proposed the name, but five years later he (Cresson 1946) treated the included species in *Helaeomyia*, a genus Cresson also described in the same 1941 paper but a page earlier. *Mimapsilopa* was considered a junior synonym of *Helaeomyia* (Cresson 1946, Wirth 1968) until Lizarralde de Grosso (1982) revised the species related to *Helaeomyia*, including recognition of *Mimapsilopa* as a separate genus. Lizarralde de Grosso's revision comprised six species, four being newly described. In our world catalog (Mathis and Zatwarnicki 1995) we followed Lizarralde de Grosso's precedent and recognized *Helaeomyia* and *Mimapsilopa* as distinct genera. Our listing in the catalog was based on Zatwarnicki's research, especially on struc-

tures of the male terminalia, that indicates the species placed in these two genera form monophyletic and separate lineages.

The descriptive terminology, with the exceptions noted in Mathis (1986) and Mathis and Zatwarnicki (1990a), follows that published in the *Manual of Nearctic Diptera* (McAlpine 1981). Because specimens are small, usually less than 3.5 mm in length, study and illustration of the male terminalia required use of a compound microscope. Although we followed the terminology for most structures of the male terminalia that other workers in Ephydriidae have used (see references in Mathis 1986, Mathis and Zatwarnicki 1990a, 1990b), Zatwarnicki (1996) now uses alternative terms (medandrium, transandrium) that are based on the "hinge" hypothesis for the origin of the eremoneuran hypopygium. The terminology for structures of the male terminalia is provided directly on Figures 11–15 and is not repeated for comparable illustrations of other species. The species descriptions are composite and not based solely on the holotypes. One head and two venational ratios that are used in the descriptions are defined below (all ratios are based on three specimens (the largest, smallest, and one other). Gena-to-Eye ratio is the genal height measured at the maximum eye height divided by the eye height. Costal vein ratio: the straight line distance between the apices of  $R_{2+3}$  and  $R_{4+5}$ /distance between the apices of  $R_1$  and  $R_{2+3}$ . M vein ratio: the straight line distance along vein M between crossveins (dm-cu and r-m)/distance apicad of dm-cu.

Although most specimens for this study are in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM), we also studied numerous specimens that are deposited in the American Museum of Natural History (AMNH), New York, the Academy of Natural Sciences of Philadelphia (ANSP), Pennsylvania, and in the Natural History Museum (BMNH), London. A few specimens are also in the collection of the second author (TZ).

#### KEY TO WEST INDIAN GENERA OF DISCOMYZINI

1. A postsutural supra-alar seta much reduced (no larger than surrounding setulae) or absent . . . . . 2
- A postsutural supra-alar seta present, size subequal to presutural seta . . . . . 5
2. Pseudopostocellar setae well developed, length about  $\frac{1}{2}$  that of ocellar setae, orientation divergent at usually less than  $90^\circ$  . . . . . *Clasiopella* Hendel
- Pseudopostocellar setae weakly developed, length considerably less than  $\frac{1}{2}$  that of ocellar setae, orientation variable . . . . . 3
3. Face conspicuously and deeply, transversely rugose; only the reclinate fronto-orbital seta well developed . . . . . *Discomyza* Meigen
- Face at most with shallowly impressed, transverse striae; at least 1 proclinate fronto-orbital seta in addition to reclinate seta well developed . . . . . 4
4. Eye appearing bare; 1 well-developed proclinate fronto-orbital seta (2nd seta greatly reduced), inserted anterior to reclinate seta; prescutellar acrostichal setae well developed; presutural supra-alar seta weakly developed, length less than anterior notopleural seta (except in *M. cressoni* Lizarralde de Grosso); legs bicolored . . . . . *Mimapsilopa* Cresson
- Eye conspicuously setulose; 2 well-developed proclinate fronto-orbital setae, anterior proclinate seta at about same level as large, reclinate seta, posterior proclinate seta inserted posterior of reclinate seta; prescutellar acrostichal setae greatly reduced or lacking; presutural supra-alar seta well developed, length longer than anterior notopleural seta; legs unicolorous, blackish brown . . . . . *Helaeomyia* Cresson
5. Mesofrons bearing strong pair of intrafrontal setae inserted well in front of ocellar setae; fronto-orbital setae with 1 large and 1 small upper, latero-clinate setae and 2 large proclinate lower setae . . . . . *Paratissa* Coquillett
- Mesofrons lacking intrafrontal setae; fronto-orbital setae proclinate and reclinate, but not latero-clinate . . . . . *Guttipilopa* Wirth

#### Genus *Mimapsilopa* Cresson

*Mimapsilopa* Cresson, 1941:36. Type species: *Clasiopella metatarsata* Cresson, 1939, original designation.—Cresson, 1946:153 [synonymy with *Helaeomyia* Cresson].—Lizarralde de Grosso, 1982:121–128 [revision].—Zatwarnicki, 1992:87 [placement of genus in *Discomyzi-*

ni].—Mathis and Zatwarnicki, 1995:27–28 [world catalog].

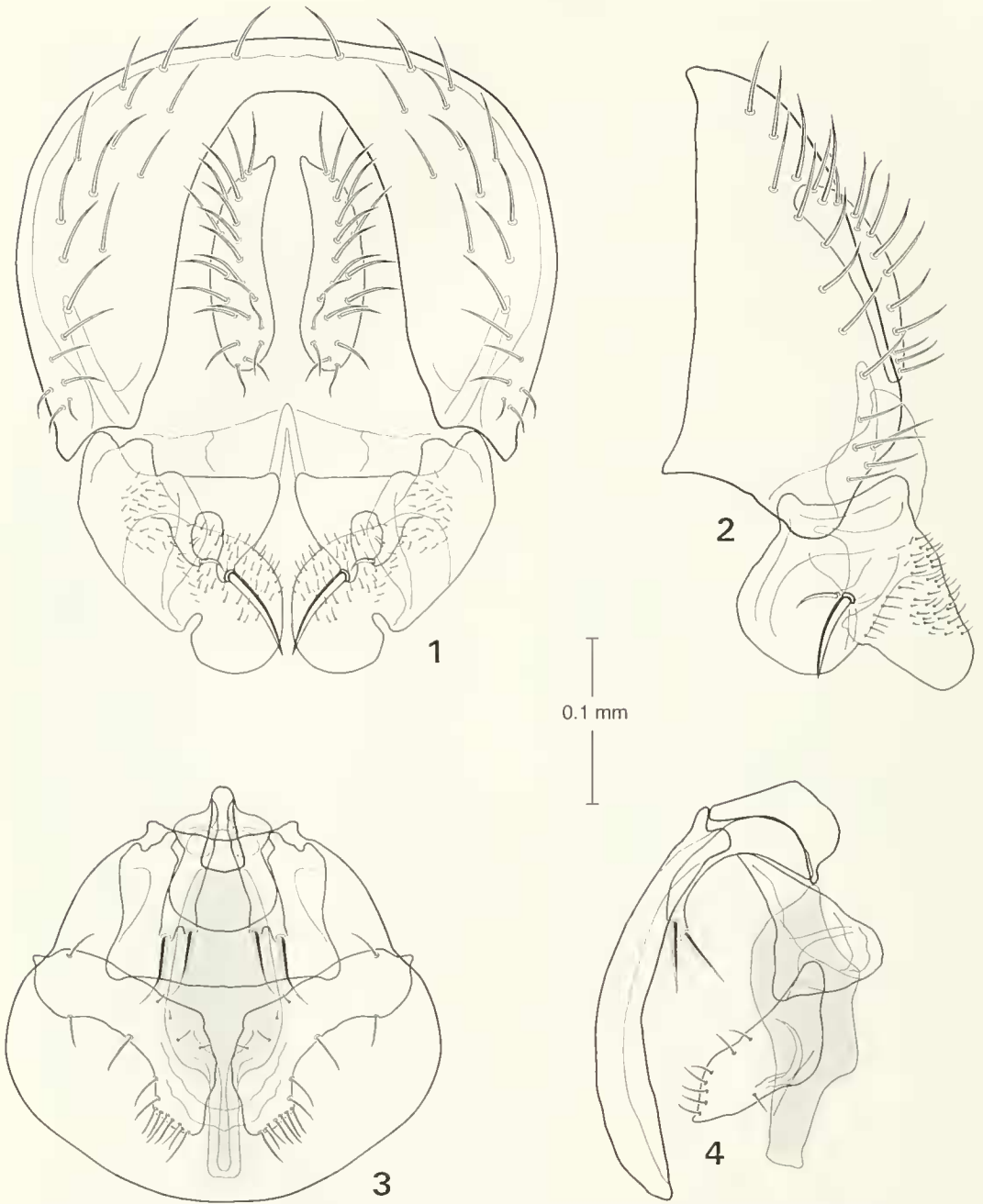
**Diagnosis.**—Small to medium-sized shore flies, length 1.30–3.40 mm; generally black species, many surfaces subshiny to shiny.

**Head:** Normally developed not triangular or with bulging eyes; antenna inserted at dorsal  $\frac{1}{3}$  of head height; frons conspicuously wider than long, microgranulose or sparsely microtomentose, contrasted from subshiny to shiny face, vertex distinctly to somewhat angulate, not broadly rounded; intrafrontal setae absent; well-developed fronto-orbital setae 2 (2nd proclinate seta greatly reduced, inserted posterior of larger proclinate seta), proclinate seta usually smaller, inserted anterior of reclinate seta; ocellar setae well developed, inserted behind level of anterior ocellus, orientation usually proclinate and slightly divergent; pseudopostocellar setae weakly developed, divergent and slightly proclinate; both inner and outer vertical setae well developed, outer seta shorter than inner seta. Antennal shape quite variable; arista pectinate, bearing 5–11 dorsal rays. Eye irregularly elliptical, higher than wide, interfacetal setulae sparse, appearing bare. Face swollen medially, mostly to entirely bare, shiny, smooth to microsculptured, lacking pits; well-developed facial setae 2, level of insertion variable, inclinate and usually slightly upcurved; proboscis normally developed, not elongate; palpus black.

**Thorax:** Generally black, mesonotum, including postpronotum and notopleuron sparsely microtomentose, thereafter ventrally, including most of pleural area, mostly bare of microtomentum, shiny black; scutellum more or less triangular, posterior angle bluntly rounded. Chaetotaxy as follows: prescutellar acrostichal setae well developed, inserted far anterior, slightly anterior of level of single, large, dorsocentral seta, distance between dorsocentral setae more than that between apical scutellar setae; presutural supra-alar seta variable, well devel-

oped or greatly reduced; postsutural supra-alar seta lacking; postalar seta 1; scutellar disc moderately setulose; basal scutellar seta over  $\frac{1}{2}$  length of apical seta; notopleuron lacking setulae but bearing anterior and posterior setae, these equidistant from notopleural suture; anepisternum with 2 large setae at posterior margin, ventral seta only slightly longer to nearly twice length of dorsal seta; katapisternum with 1 large seta. Halter with knob white to yellowish. Wing variable, hyaline or with pattern of infuscation, especially toward anterior margin, along crossveins, and apically; vein  $R_{2+3}$  extended normally to costal margin, well separated from costa, lacking a stump vein, moderately long, making section II about 1.5 length of section III; R stem vein bearing 2–4 setulae dorsally; crossvein dm-cu straight. Tarsi, at least basitarsi, white to yellow, contrasted sharply from dark colored tibiae and femora; forefemur with dorsal surface uneven, slightly emarginate.

**Abdomen:** Mostly shiny, blackish, microtomentum generally sparse; 5th tergite of male shinier than preceding tergites, almost devoid of microtomentum, anterior margin with broad, shallow emargination dorsomedially, bearing longer setae along posterior margin. Male genitalia mostly symmetrical; epandrium U-shaped in posterior view, arms projected ventrad, posterior surface generally setulose, generally thickly formed, especially dorsal portion, arms tapered gradually toward ventral apex; cercus in posterior view broadly lunate, especially ventrally, dorsal apex more narrowly pointed; presurstyli large structures at ventral margin of epandrium, median surface with a small emargination dorsally, thereafter ventrally on apical  $\frac{2}{3}$  shallowly concave and bearing numerous, short setulae, external surface arched; postsurstyli longer than wide, bearing numerous setulae, symmetrical or asymmetrical at apex, apex sometimes bilobed, mediobasal surface bearing an internal, medially directed, usually rodlike postsurstylar process; subepandrial plate broadly U-shaped, base longer



Figs. 1-4. *Mimapsilopa cressoni*. 1, Male terminalia (epandrium, cercus, presurstylus), posterior view. 2, Same, lateral view. 3, Internal male terminalia (aedeagus, aedeagal apodeme, pregonite, postgonite, postsurstylar process, hypandrium, and subepandrial plate), ventral view. 4, Same, lateral view. Scale = 0.1 mm.



than length of arms; aedeagus longer than wide, variously shaped; aedeagal apodeme in lateral view more or less triangular, angle at attachment with hypandrium thicker; hypandrium in lateral view angulate, becoming much wider toward anterior margin, concavity moderately deep.

Phylogenetic relationships.—There are two species groups within *Mimapsilopa* that are characterized as follows:

(1) The *metatarsata* Group: face smooth, polished; dorsoapical seta of pedicel moderately long, length less than width of pedicel; presutural supra-alar seta greatly reduced, much shorter than notopleural setae; ventral anepisternal seta at posterior margin only slightly larger than dorsal seta; anepisternum, anterior  $\frac{2}{3}$  of katepisternum, and lateral surface of forecoxa polished, shiny, contrasted with microtomentose mesonotum, including notopleuron; forebasitarsomere white, remainder of foreleg black, epandrium thickened and wider dorsally, presurstylus with median surface shallowly concave on ventral  $\frac{2}{3}$ , bearing numerous short setulae; postsurstylus bearing rodlike process; gonites separate.

(2) The *cressoni* Group: face finely granulose and with some shallow, transverse rugosity; dorsoapical seta of pedicel long, length greater than width of pedicel; presutural supra-alar seta well developed, length subequal to notopleural setae; ventral anepisternal seta at posterior margin nearly twice length of dorsal seta; dorsal and posterior margins of anepisternum microtomentose, similar to notopleuron; forecoxa sparsely microtomentose; forebasitarsomere yellow, similar to mid- and hindtarsi; epandrium with high cercal cavity, making dorsal portion of epandrium narrow; and presurstylus with large, median seta and median surface rounded, not concave; postsurstylus lacking rodlike process; pre- and postgonites fused and enlarged.

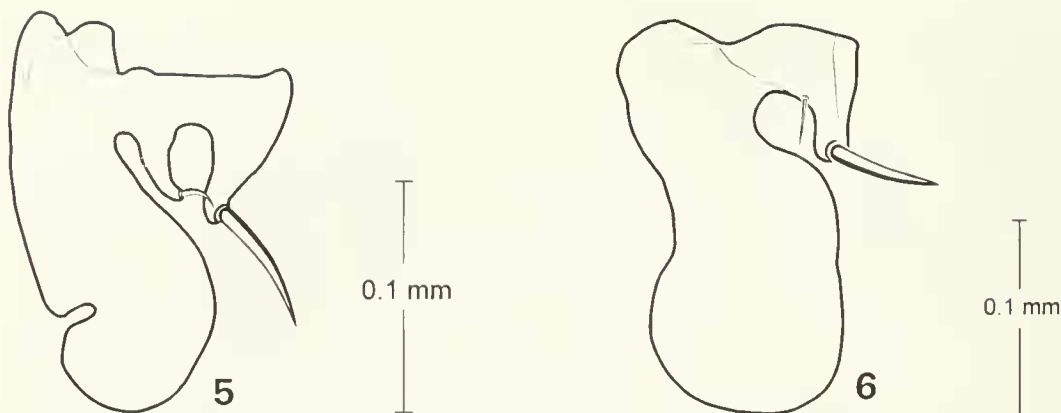
Two of the new species from the West Indies, *M. cubensis* and *M. dominicana*, are members of the *metatarsata* group, and within that group they are a monophyletic

lineage that is characterized by the wide face and greatly enlarged antenna of the male, especially the pedicel and 1st flagellomere, and the longer setulae on the dorsum of the apical 2–3 tarsomeres of the foreleg. The third new species, *M. bacoa*, is the sister species of *M. cressoni*. Synapomorphies that corroborate this relationship are those that characterize this species group, as noted previously.

Discussion.—Considerable intraspecific size variation is evident, even in populations from the same locality. Males from a single site and collected at the same time can vary from 1.30 to 2.25 mm in total body length. As we know virtually nothing about the life cycle of this genus, particularly the immature stages, it is speculative to suggest the causes of this variation, although experience in rearing other groups of shore flies suggests that nutrition plays a major role.

KEY TO WEST INDIAN SPECIES OF  
MIMAPSILOPA

1. Antenna of ♂ greatly enlarged, especially pedicel and 1st flagellomere (combined length of these 2 segments almost equal to height of eye); length of 1st flagellomere of ♀ over twice width . . . . . 2
  - Antenna of ♂ normally developed, combined length far less than eye height; length of 1st flagellomere of ♀ not more than twice width . . . . . 3
2. Antenna mostly yellow, especially scape and pedicel; forefemur lacking comblike row of setae along anteroventral surface; foretarsus with basal 2 white, apical 3 black . . . . .
  - . . . . . *M. cubensis*, new species
  - Antenna black; forefemur with comblike row of short, stout setae along anteroventral surface; forebasitarsus white, apical 4 black . . . . .
    - . . . . . *M. dominicana*, new species
3. Wing with costal margin, apex, and crossvein dm-cu infusate; face smooth, shiny; presutural supra-alar seta greatly reduced, much shorter than notopleural setae; ventral anepisternal seta at posterior margin only slightly larger than dorsal seta; forebasitarsomere white . . . . . *M. schildi* (Cresson)
  - Wing hyaline; face finely granulose and with mostly transverse, fine rugosity; presutural supra-alar seta well developed, length subequal to notopleural setae; ventral anepisternal seta



Figs. 5–6. Presurstylus, posterior view (artificially flattened for better comparison). 5, *Mimapsilopa cressoni*. 6, *M. bacoa*. Scale = 0.1 mm.

- at posterior margin nearly twice length of dorsal seta; forebasitarsomere yellow . . . . . 4
4. First flagellomere with length comparatively longer than width, gradually and evenly tapered from wider base to narrow and more acutely rounded apex, yellow basoventrally, black dorsoapically . . . . .  
 . . . . . *M. cressoni* Lizarralde de Grosso
- First flagellomere with length comparatively shorter and more bluntly rounded apex, mostly yellow with only some specimens usually faintly black along dorsoapical margin . . . . .  
 . . . . . *M. bacoa*, new species

*Mimapsilopa cressoni*  
 Lizarralde de Grosso  
 (Figs. 1–4, 6)

*Helaeomyia nigra*.—Cresson, 1942:124 [misidentification of *Psilopa nigra* Williston].

*Mimapsilopa cressoni* Lizarralde de Grosso, 1982:127 [USA. Florida: Pinellas County, Dunedin; HT ♂, USNM].—Mathis and Zatwarnicki, 1995:27–28 [world catalog].

Specimens Examined from the West Indies.—**BAHAMAS.** *Andros*: Driggs Hills (near South Bight), 27 Apr 1953, E. B. Hayden, L. Giovannoli (1 ♀; USNM). *Rum Cay*: near Port Nelson, 16 Mar 1953, E. B. Hayden, L. Giovannoli (3 ♂; USNM). **CUBA.** *Havana*: Havana (beach; 23°5.8'N, 82°27.7'W), 2–14 Dec 1994, W. N. Mathis

(2 ♀; USNM). **DOMINICAN REPUBLIC.** *Barahona*: Cabral (canals E of Cabral; 18°15.2'N, 71°13.4'W), 16 May 1995, W. N. Mathis (2 ♂, 1 ♀; USNM). **GRAND CAYMAN.** Frank Sound Road (19°18.9'N, 81°10.9'W), 28 Apr 1994, W. N. Mathis (1 ♀; USNM). Governor Gore Bird Sanctuary (19°16.7'N, 81°18.5'W), 25 Apr 1994, W. N. Mathis (1 ♂; USNM). Savannah (4 km NE; 19°18'N, 81°17'W; mangrove), 20 Feb 1993, F. J. Burton, W. E. Steiner, J. M. Swearingen (2 ♂, 3 ♀; USNM). **GRENA DA.** *St. John*: Palmiste Lake (12°08.3'N, 61°44'W), 19 Sep 1996, W. N. Mathis (1 ♀; USNM). *St. Patrick*: Bathway Beach (12°12.6'N, 61°36.7'W), 18–20 Sep 1996, W. N. Mathis (1 ♂; USNM). **JAMAICA.** *Clarendon*: Milk River Bath (mangroves), 11 Mar 1970, T. Farr, W. W. Wirth (2 ♂, 3 ♀; USNM); Salt River (4 km N; 17°52.1'N, 77°09.5'W), 13 May 1996, D. and W. N. Mathis, H. Williams (6 ♂, 9 ♀; USNM). *Manchester*: Mandeville (18°03.5'N, 77°31.9'W), 7–13 May 1996, D. and W. N. Mathis, H. Williams (1 ♂, 1 ♀; USNM). *St. Andrew*: Ferry River, 12 May 1941, E. Chapin (1 ♂; USNM); Kingston, Fresh River, 24 Feb 1969, W. W. Wirth (1 ♂, 3 ♀; USNM). *St. Ann*: Runaway Bay, Feb 1969, W. W. Wirth (1 ♂, 2 ♀; USNM). *St. Catherine*: Port Henderson (bay shore), 24 Feb 1969, W. W. Wirth (1 ♀; USNM). *St. Eliz-*

*abeth*: Brae River (18°05.2'N, 77°39.3'W), 10 May 1996, D. and W. N. Mathis, H. Williams (1 ♂; USNM); Brae River (2 km S; 18°04.2'N, 77°39.5'W), 10 May 1996, D. and W. N. Mathis, H. Williams (2 ♂; USNM); Elim (18°07.1'N, 77°40.6'W), 10 May 1996, D. and W. N. Mathis, H. Williams (4 ♂; USNM); Port Kaiser (17°51.9'N, 77°35.7'W), 8 May 1996, D. and W. N. Mathis, H. Williams (1 ♀; USNM); near Port Kaiser (17°52.3'N, 77°34.9'W), 8 May 1996, D. and W. N. Mathis, H. Williams (1 ♀; USNM). *St. Thomas*: Yallahs River (mouth; 17°53'N, 76°35.6'W), 14 May 1996, D. and W. N. Mathis, H. Williams (1 ♂; USNM). *Westmoreland*: Negril (5 mi E; freshwater marsh), 13 Mar 1970, W. W. Wirth (1 ♀; USNM). *TRINIDAD*. Port of Spain, Ujhelyi (1 ♂; ANSP).

Distribution.—*Nearctic*: USA (FL). *Neotropical*: Bahamas, Ecuador, Guyana, Trinidad, West Indies (Cuba, Dominican Republic, Grand Cayman, Grenada, Jamaica).

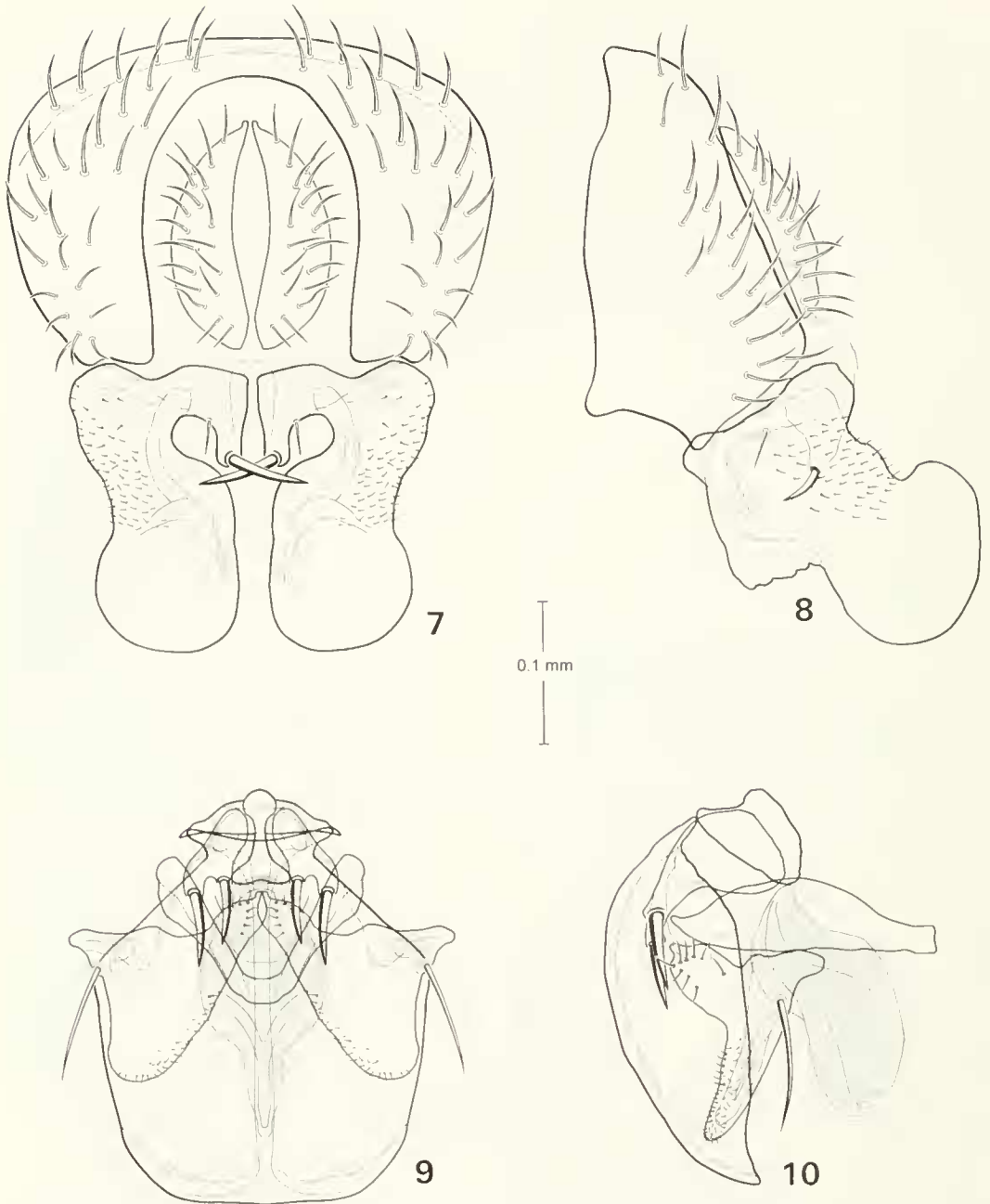
Diagnosis.—This species is distinguished from congeners by the following combination of characters: antenna normally developed and not sexually dimorphic; 1st flagellomere black around margins, apex acutely rounded; face microsculptured, finely granulose and with incomplete transverse and vertical rugosity, especially dorsally; presutural supra-alar seta well developed, length subequal to notopleural setae; ventral anepisternal seta at posterior margin nearly twice length of dorsal seta; wing entirely hyaline; forefemur bearing a comblike row of short, stout, peglike setulae along anteroventral surface; foretarsus including forebasitarsomere yellow.

*Male terminalia* (Figs. 1–4): Epandrium in posterior view (Fig. 1) as an upside down, thin to thick-walled U, dorsal portion narrowed between dorsal margin of cercal cavity and anterodorsal margin, arms widest basally, gradually tapered toward ventral margin; epandrium in lateral view (Fig. 2) with height slightly more than twice width, dorsal margin sloped posteroventrally, an-

terodorsal angle pointed and shallowly projected, widest at basal fourth; thereafter abruptly narrowed to broadly rounded ventral margin; cercus in posterior view (Fig. 1) allantoid with dorsal margin pointed and ventral margin broadly rounded; presurstylus symmetrical, in posterior view (Figs. 1, 6) bearing a lobe directed anteromedially, with broadly rounded anterior margin and subapical incision of external margin, bearing mediobasally U-shaped attachment with arms directed anteriorly and bearing strong setae, internal seta 3× as large as external; presurstylus in lateral view (Fig. 2) more or less bluntly bilobed, anterior lobe longer but slightly narrower; postsurstyli symmetrical (Fig. 3), sparsely setulose on lateral surfaces, both about 3.5× longer than wide, more or less parallel sided, obtusely angulate, apex bearing numerous setulae; aedeagal apodeme in lateral view (Fig. 4) crescent shaped, apex attached to base of aedeagus more narrowed, digitiform; external margin comparatively little produced, forming an angle slightly more than 90°, median margin concave; aedeagus (Figs. 3–4) pointed basally in lateral view and with apical third narrowed to less than half median width, apex truncate; subepandrial plate in ventral view (Fig. 3) broadly U-shaped, basal portion nearly flat, basal angles narrowly rounded; gonites (Fig. 4) fused, forming distinct rodlike structure, digitiform, bearing 2 long setulae apically; hypandrium shallowly pocketlike, in lateral view shallowly arched, slightly narrowed basally at attachment with aedeagal apodeme, more or less parallel sided thereafter to apex.

***Mimapsilopa bacoa* Mathis and  
Zatwarnicki, new species**  
(Figs. 5, 7–10)

Diagnosis.—This species is distinguished from congeners by the following combination of characters: antenna normally developed and not sexually dimorphic; 1st flagellomere mostly yellow, with some black along dorsal margin, apex broadly rounded; face microsculptured, finely granulose and



Figs. 7-10. *Mimapsilopa bacoa*. 7, Male terminalia (epandrium, cercus, presurstylus), posterior view. 8, Same, lateral view. 9, Internal male terminalia, ventral view. 10, Same, lateral view. Scale = 0.1 mm.

with incomplete transverse and vertical rugosity, especially dorsally; presutural supraalar seta well developed, length subequal to notopleural setae; ventral anepisternal seta at posterior margin nearly twice length of

dorsal seta; wing entirely hyaline; forefemur bearing a comblike row of short, stout, peglike setulae along anteroventral surface; foretarsus, including forebasitarsomere, yellow except for black, apical 2 tarsomeres.



Description.—Moderately small shore flies, body length 2.35–2.50 mm.

*Head:* Scape and pedicel black; flagellomere 1 broadly rounded. Antenna; arista bearing 9–11 dorsal hairs. Face microsculptured, finely granulose and with incomplete, transverse and vertical rugosity, especially dorsally. Gena-to-eye ratio 0.08–0.11.

*Thorax:* Presutural supra-alar seta well developed, length subequal to notopleural setae; ventral anepisternal seta at posterior margin nearly twice length of dorsal seta. Wing hyaline, faintly golden brown; costal vein ratio 0.72–0.75; M vein ratio 0.75–0.78. Femora and tibiae black; tarsi yellow except for black, apical 2 tarsomeres; forefemur bearing row of short, peglike setulae along anteroventral surface.

*Abdomen:* Male terminalia (Figs. 5, 7–10): Epandrium in posterior view (Figs. 5, 7) as an upside down, thin to thick-walled U, narrowed dorsally between dorsal margin of cercal cavity and anterodorsal margin, lateral arms widest basally, gradually tapered toward ventral margin; epandrium in lateral view (Fig. 8) with height about twice width, dorsal margin sloped posteroventrally, anterodorsal angle slightly pointed and very shallowly projected, widest at ventral fourth, thereafter abruptly narrowed to broadly angulate ventral margin; cercus in posterior view (Fig. 7) allantoid with dorsal margin pointed and ventral margin more broadly rounded; presurstylus symmetrical, in posterior view (Figs. 5, 7) as a bilobed structure, with median lobe much smaller, rodlike, bearing a long, stout seta apically that is oriented medially and a much longer and wider lateral lobe that extends ventrally as a wide, broadly rounded projection; presurstylus in lateral view (Fig. 8) with base quadrate and apical portion equally wide, broadly rounded ventrally, forming an angulate steplike shelf where the basal and apical portion meet; postsurstyli symmetrical (Fig. 9), in ventral view, irregularly and roughly triangular, gradually becoming narrower, more projected posteromedially, medioapical margin more or less

broadly pointed, falcate, and bearing short setulae; aedeagal apodeme in lateral view (Fig. 10) roughly and irregularly triangular, short and wide, apex (attached to base of aedeagus) more broadly rounded than angle that attaches with hypandrium; external margin of aedeagal apodeme comparatively little produced, forming more or less a right angle, median margin straight; aedeagus (Figs. 9–10) in lateral view pointed basally and with apical two thirds rectangular, apex steplike; subepandrial plate in ventral view (Fig. 9) V-shaped with arms directed posterolaterally; pregonite (Fig. 10) a moderately narrow, moderately long rodlike sclerite bearing 2 long setulae apically; hypandrium moderately shallowly pocketlike, in lateral view moderately shallowly arched, slightly narrowed basally at attachment with aedeagal apodeme, more or less deeply sided immediately thereafter to apex.

Type material.—The holotype ♂ is labeled "DominicanRp. LaVega: Jarabacoa (5 km S) 19°05.8'N, 70°36.5'W 640 m, 8–20 May 1995[,] Wayne N. Mathis." The holotype is double mounted (minuten in block of plastic), is in excellent condition, and is deposited in the USNM. Paratypes are as follows: *Puerto Rico*. San Juan, 14 Mar 1963, A. B. Cochram (2 ♂; USNM).

Distribution.—*Neotropical:* West Indies (Dominican Republic, Puerto Rico).

Etymology.—The specific epithet, *barbacoa*, is based in part on the site where the holotype was collected.

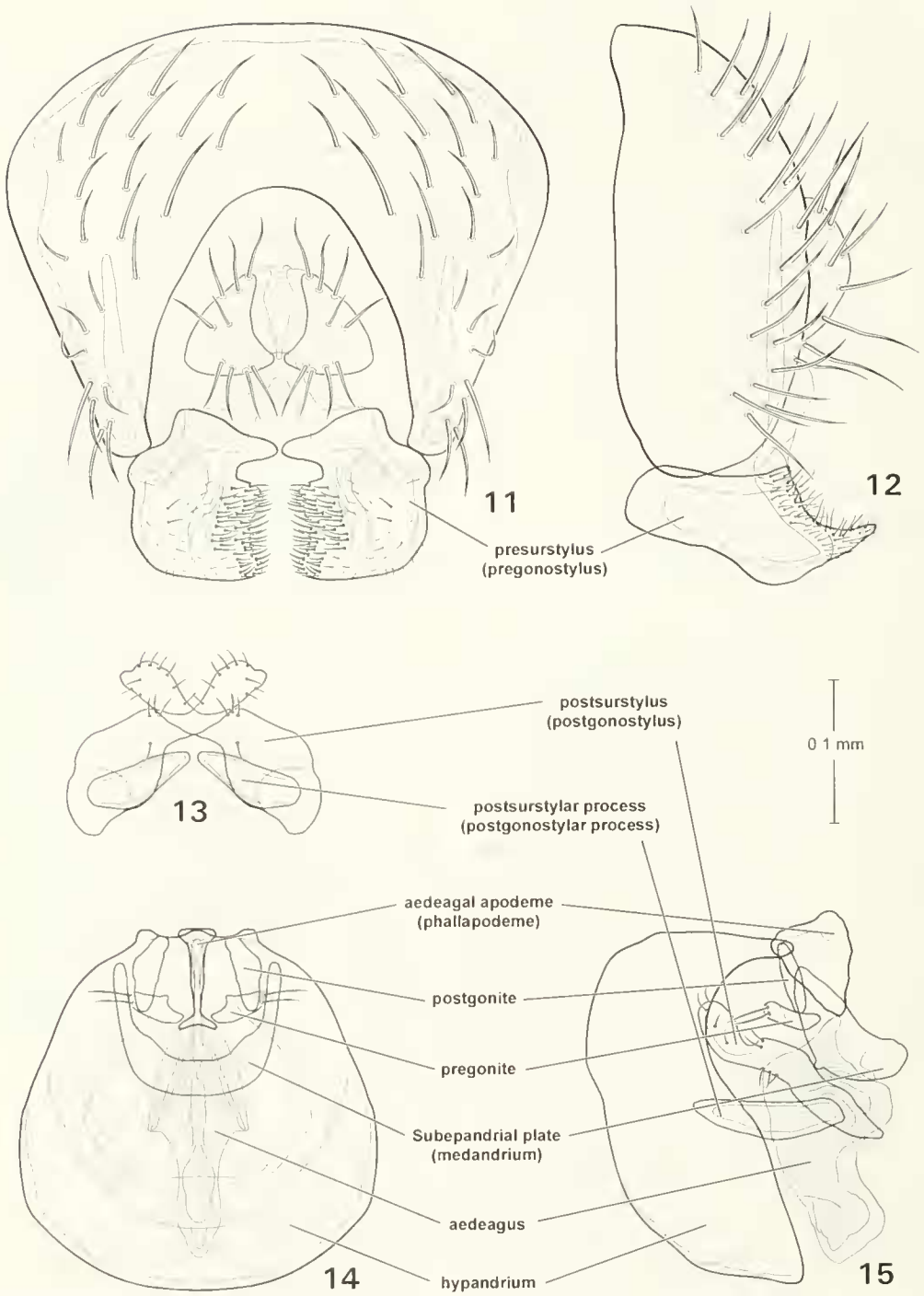
*Mimapsilopa schildi* (Cresson)  
(Figs. 11–15)

*Psilopa schildi* Cresson, 1944:5 [Costa Rica. La Suiza; HT ♂, ANSP (6663, apparently lost)].

*Helaeomyia schildi*: Cresson, 1946:153 [generic combination].

*Mimapsilopa schildi*: Lizarralde de Grosso, 1982:127 [revision, generic combination].—Mathis and Zatwarnicki, 1995:28 [world catalog].

Specimens Examined from the West Indies.—*GRAND CAYMAN*. near George-



Figs. 11–15. *Mimapsilopa schildi*. 11, Male terminalia (epandrium, cercus, presurstylus), posterior view. 12, Same, lateral view. 13, Internal male terminalia, ventral view. 14, Postsurstyli, ventral view. 15, Internal male terminalia, lateral view. Scale = 0.1 mm.

town, J. Farradame (1 ♂, 1 ♀; BMNH). *TRINIDAD. St. George*: Filette (1 km SE; 10°47'N, 61°21'W). Yarra River, 25 Jun 1993; W. N. Mathis (3 ♂, 4 ♀; USNM).

**Distribution.**—*Neotropical*: Costa Rica, Ecuador, Guyana, Mexico, Panama, Peru, Trinidad, West Indies (Grand Cayman).

**Diagnosis.**—This species is distinguished from congeners by the following combination of characters: antenna normally developed and not sexually dimorphic; 1st flagellomere entirely yellow, apex bluntly rounded; face smooth, shiny; presutural supra-alar seta greatly reduced, much smaller than notopleural setae; ventral anepisternal seta at posterior margin only slightly longer than dorsal seta; wing with costal margin, apex, and crossvein dm-cu infuscate; fore-basitarsus white.

**Male terminalia** (Figs. 11–15): Epandrium in posterior view (Fig. 11) as an upside down, thick-walled U, especially dorsal portion above cercal cavity, that becomes gradually narrower toward the ventral apex of the arms, in lateral view (Fig. 12) with height slightly more than 2.5× width, dorsal margin slightly sloping ventrad posteriorly, anterodorsal angle bluntly pointed and shallowly projected, widest at midheight, thereafter narrowed to broadly formed point at ventral margin; cercus in posterior view (Fig. 11) lunate with anterior half more narrowly formed, pointed and with ventral margin shallowly curved; prestylus symmetrical, in posterior view (Fig. 11) more or less squarish, with median surface shallowly concave on ventral half and bearing numerous short setulae, dorsal portion with deep, narrow, U-shaped emargination that is bounded dorsally by a digitiform process; lateral view (Fig. 12) more or less slipperlike, rectangular basally, becoming wider posteriorly to a pointed process dorsally and a rounded angle ventrally, posterodorsal margin distinctly concave and bearing numerous setulae, posteriormost portion pointed; postsurstyli symmetrical (Fig. 13), setulose on lateral surfaces, both about 2.5× longer than wide, each wider at

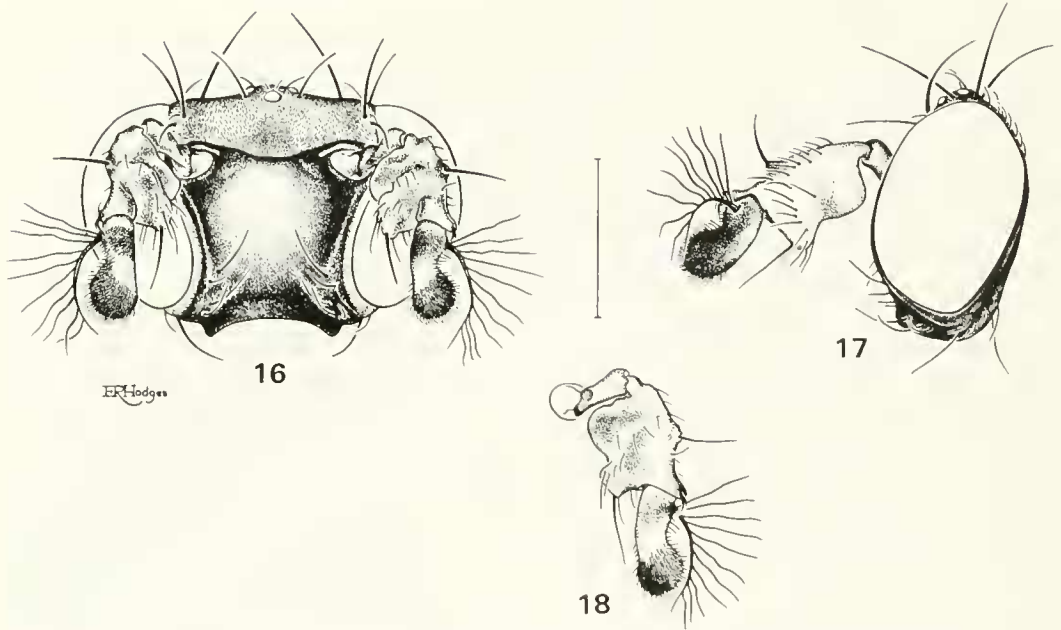
basal half, thereafter becoming narrow before slightly widened apex that is shallowly notched apically; each postsurstylus bearing a rodlike process that extends from near base; subepandrial plate in ventral view moderately broadly U-shaped, basal portion nearly flat; aedeagal apodeme in lateral view roughly triangular, external margin comparatively more produced, forming an angle slightly less and a right angle, median margin essentially straight; aedeagus (Figs. 14–15) with basodorsal emargination shallow but comparatively long, apicodorsal emargination slightly deeper and longer, ventral surface nearly straight with apical surface nearly flat; pregonite (Figs. 14–15) a small rodlike sclerite bearing 2 long setulae apically; hypandrium deeply pocketlike, in lateral view angulate, narrowed basally at attachment with aedeagal apodeme, becoming wider toward anterior margin.

***Mimapsilopa cubensis* Mathis and  
Zatwarnicki, new species**  
(Figs. 16–24)

**Diagnosis.**—This species is distinguished from congeners by the following combination of characters: wing hyaline; antenna of male greatly enlarged (combined length of pedicel and 1st flagellomere almost equal to height of eye); antenna mostly yellow, especially scape and pedicel; face smooth, shiny; presutural supra-alar seta greatly reduced, much smaller than notopleural setae; ventral anepisternal seta at posterior margin only slightly longer than dorsal seta; fore-femur lacking comblike row of setae along anteroventral surface; foretarsus with basal 2 white, apical 3 tarsomeres black.

**Description.**—Small to moderately small shore flies, body length 1.40–2.50 mm.

**Head** (Figs. 16–18): Frons of male wide, length-to-width ratio averaging 0.4, moderately densely microtomentose, subshiny, bronzy, similar to mesonotum. Antenna mostly yellow, especially pedicel; antenna of male (Fig. 18) greatly enlarged, combined length of pedicel and 1st flagellomere almost equal to height of eye; scape rodlike,



Figs. 16–18. *Mimapsilopa cubensis*. 16, Head, anterior view. 17, Same, lateral view. 18, Left antenna, median view. Scale = 0.1 mm.

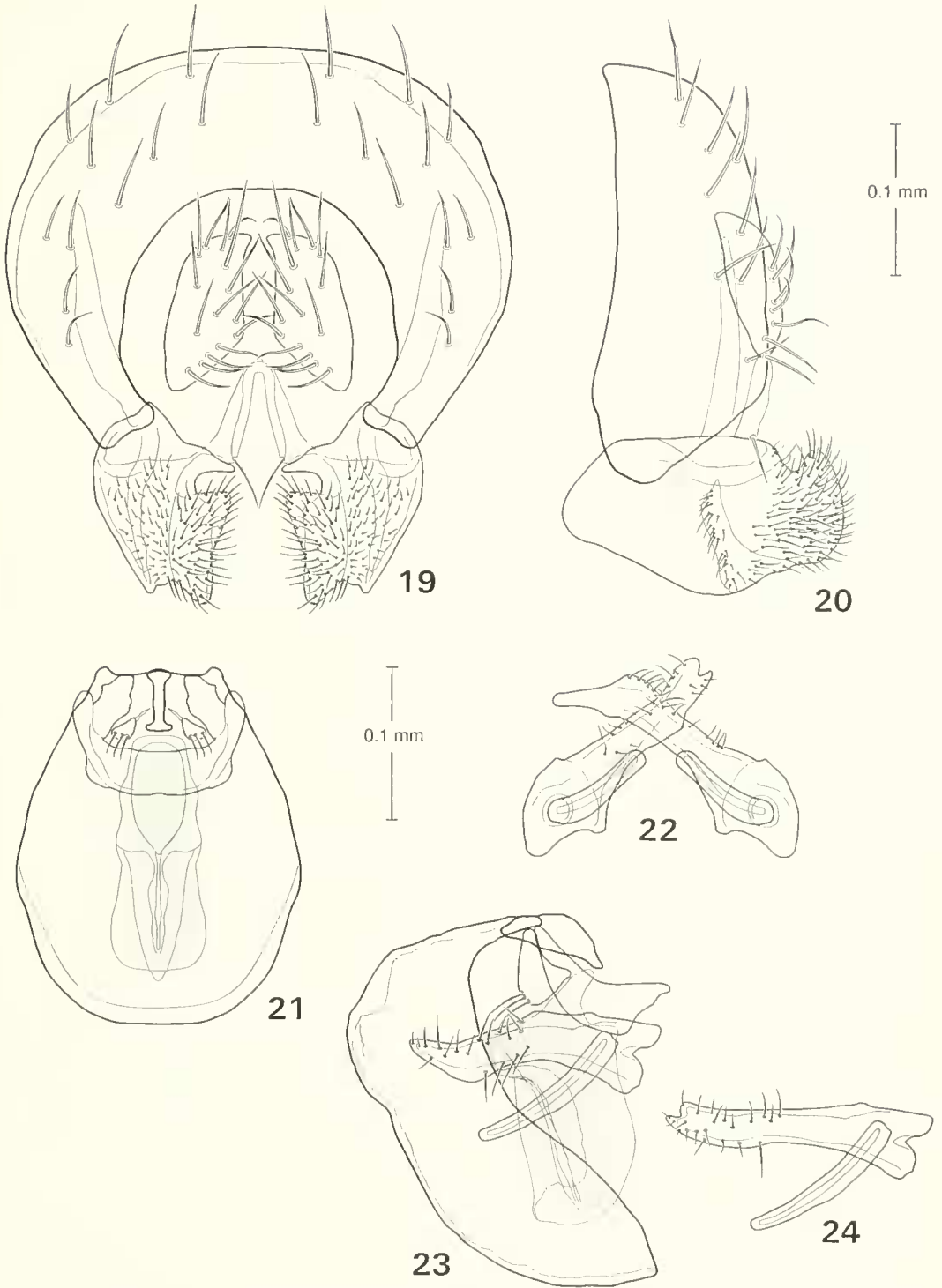
whitish microtomentose on lateral surface; 1st flagellomere parallel sided and shallowly curved, bluntly rounded apically, apex black; arista bearing 9 dorsal hairs. Face polished, shiny black, shallowly swollen over much of middle. Parafacial below level of antenna whitish microtomentose. Eye oval, much higher than wide, width-to-height ratio 0.67. Mouthparts, including maxillary palpus, black.

**Thorax:** Mesonotum moderately densely microtomentose, bronzish; pleural areas from anepisternum ventrad mostly shiny black, with only small areas bearing microtomentum. Presutural supra-alar seta greatly reduced, much smaller than either notopleural seta; ventral anepisternal seta at posterior margin only slightly longer than dorsal seta. Wing hyaline; costal vein ratio 0.73–0.88; M vein ratio 0.52–0.61. Femora black; foretibia black, other tibiae mostly brownish yellow to yellow; forefemur lacking comblike row of setae along anteroventral surface; foretarsus with basal 2 tarsomeres white, apical 3 tarsomeres black and

bearing several long, crooked setulae dorsally, other tarsi mostly whitish yellow to yellow except for apical, blackish tarsomere.

**Abdomen:** Tergites black; tergites 1–4 of male becoming progressively longer posteriorly; 5th tergite short, length similar to 1st; tergites moderately densely dark brownish microtomentose medially, becoming more sparsely so toward lateral margins, which are shiny black. Male terminalia (Figs. 19–24): Epandrium in posterior view (Fig. 19) as an upside down, thick-walled U, especially dorsal portion above cercal cavity, that becomes gradually narrower toward the ventral apex of the arms; epandrium in lateral view (Fig. 20) with height slightly more than 2.5× width, dorsal margin slightly sloping ventrad posteriorly, anterodorsal angle bluntly pointed and shallowly projected, widest at basal ¼, thereafter narrowed to broadly formed point at ventral margin; cercus in posterior view (Fig. 19) irregularly trapezoidal with ventral surface longer than dorsal surface and





Figs. 19-24. *Mimapsilopa cubensis*. 19, Male terminalia (epandrium, cercus, presurstylus), posterior view. 20, Same, lateral view. 21, Internal male terminalia, ventral view. 22, Posturstyli, ventral view. 23, Internal male terminalia, lateral view. 24, Left posturstylus, lateral view. Scale = 0.1 mm.

the dorsolateral angle broadly rounded; presurstylus symmetrical, in posterior view (Fig. 19) with median surface very shallowly concave on ventral half, dorsal portion with deep, narrow, U-shaped emargination that is bounded dorsally by an acutely pointed, median directed process; ventral margin of presurstylus in posterior view bifid, with median process much larger than toothlike lateral process; presurstylus in lateral view (Fig. 20) more or less rectangular, especially basal half that becoming slightly wider medially along ventral margin, apical half with dorsal surface as a rounded U-shaped emargination, ventral margin opposite dorsal emargination very shallowly concave; postsurstyli asymmetrical (Fig. 22), setulose on lateral surfaces, both about 3× longer than wide, each with a median, rodlike process that extends from near base; right postsurstylus (Fig. 22) with basal third widest, thereafter more or less parallel sided until narrowly tapered apical ¼; left postsurstylus (Fig. 22, 24) similar but with apical third with slightly angulate orientation and with apex shallowly but distinctly bifurcate; subepandrial plate in ventral view (Fig. 21) broadly U-shaped, basal portion nearly flat, lateral arms slightly spatulate; aedeagal apodeme in lateral view irregularly triangular, external margin forming a rounded right angle, median margin essentially straight; aedeagus (Figs. 21, 23) longer than wide, dorsal margin with a single emargination at basal third along dorsal margin, middle portion parallel sided, thereafter apically with dorsal margin curved to meet ventral margin; pregonite (Fig. 23) a small sclerite bearing 3 long setulae; hypandrium (Fig. 23) deeply pocketlike, in lateral view angulate, narrowed basally at attachment with aedeagal apodeme, becoming wider toward anterior margin.

Type material.—The holotype ♂ is labeled "CUBA. Pinar del Rio: Soroa, 2 km NW, 22°48.6'N, 83°1.0'W, 4–5Dec1994, WMathis." The allotype female and 13 paratypes (13 ♂; USNM) bear the same label data as the holotype. The holotype is

double mounted (minuten in block of plastic), is in excellent condition, and is on long-term deposit in the USNM. Other paratypes are as follows: *CUBA. Pinar del Rio*: Soroa (22°47.7'N, 83°W), 27–28 Apr 1983, W. N. Mathis (3 ♂; USNM). *Sancti Spiritus*: Topes de Collantes (21°55.2'N, 80°02'W; 350 m), 10 Dec 1994, W. N. Mathis (3 ♂; USNM).

Distribution.—*Neotropical*: West Indies (Cuba).

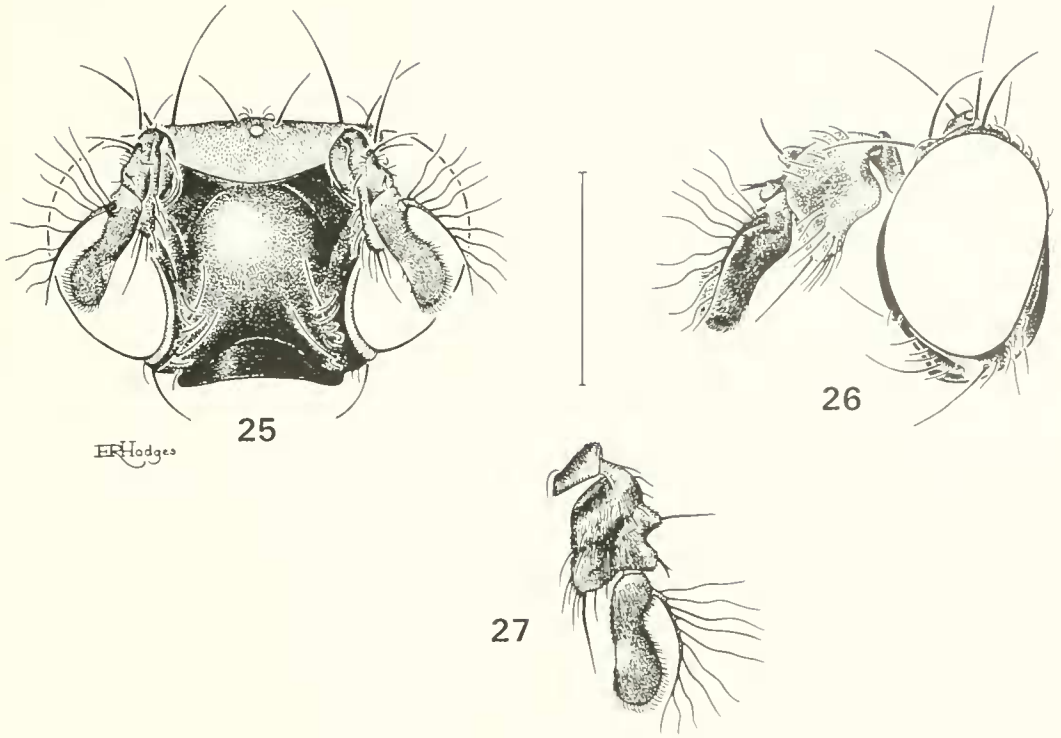
Etymology.—The specific epithet, *cubensis*, refers to the island where this species is apparently endemic.

***Mimapsilopa dominicana* Mathis and  
Zatwarnicki, new species**  
(Figs. 25–33)

Diagnosis.—This species is distinguished from congeners by the following combination of characters: wing hyaline; antenna of male greatly enlarged (combined length of pedicel and 1st flagellomere almost equal to height of eye); antenna black; face mostly polished, shiny black; presutural supra-alar seta greatly reduced, much smaller than notopleural setae; ventral anepisternal seta at posterior margin only slightly longer than dorsal seta; forefemur bearing a comblike row of short, stout setae along anteroventral surface; forebasitarsus white, apical 4 tarsomeres black.

Description.—Small to moderately small shore flies, body length 1.50–2.30 mm.

*Head* (Figs. 25–27): Frons of male wide, length-to-width ratio averaging 0.4, moderately densely microtomentose, subshiny, bronzy, similar to mesonotum. Antenna mostly black, especially scape and pedicel; antenna of male (Fig. 27) greatly enlarged, combined length of pedicel and 1st flagellomere almost equal to height of eye; scape rodlike, whitish microtomentose on lateral surface; 1st flagellomere parallel sided and shallowly curved, bluntly rounded apically, mostly black except for basoventral portion; arista bearing 9 dorsal hairs. Face polished, shiny black, shallowly swollen over much of middle. Parafacial below level of antenna



Figs. 25-27. *Mimapsilopa dominicana*. 25. Head, anterior view. 26. Same, lateral view. 27. Left antenna, median view. Scale = 0.1 mm.

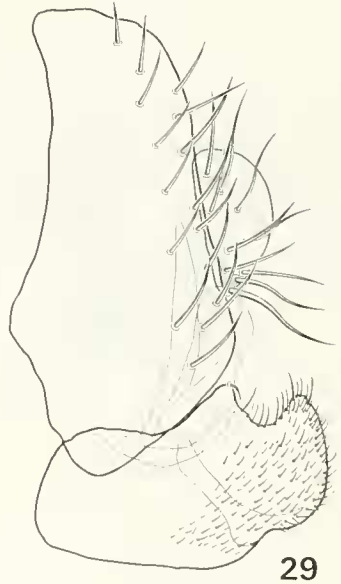
whitish microtomentose. Eye oval, much higher than wide, width-to-height ratio 0.68. Mouthparts, including maxillary palpus, black.

**Thorax:** Mesonotum moderately densely microtomentose, bronzy; pleural areas from anepisternum ventrad mostly shiny black, with only small areas bearing microtomentum. Presutural supra-alar seta greatly reduced, much smaller than either notopleural seta; ventral anepisternal seta at posterior margin only slightly longer than dorsal seta. Wing hyaline; costal vein ratio 0.74-0.83; M vein ratio 0.56-0.58. Femora and tibiae black, apex of tibiae sometimes yellowish; forefemur bearing comblike row of short stout setae along anteroventral surface; forebasitarsomere white, apical 4 tarsomeres black and bearing several long, crooked setulae dorsally; other tarsi mostly whitish yellow to yellow except for apical, blackish tarsomere.

**Abdomen:** Tergites black; tergites 1-4 of male becoming progressively longer posteriorly; 5th tergite short, length similar to 1st; tergites moderately densely dark brownish microtomentose medially, becoming more sparsely so toward lateral margins, which are shiny black. Male terminalia (Figs. 28-33): Epandrium in posterior view (Fig. 28) as an upside down, thick-walled U, especially dorsal portion above cercal cavity, that becomes gradually narrower toward the ventral apex of the arms; epandrium in lateral view (Fig. 29) with height slightly more than twice width, dorsal margin slightly sloping ventrad posteriorly, anterodorsal angle bluntly pointed and shallowly projected, widest at basal third, thereafter narrowed to broadly formed point at ventral margin; cercus in posterior view (Fig. 28) lunate with anterior half more narrowly formed, pointed and with ventral margin recurved just before medioventral,

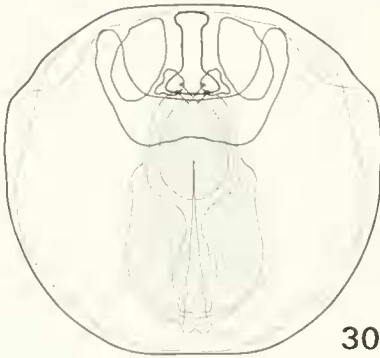


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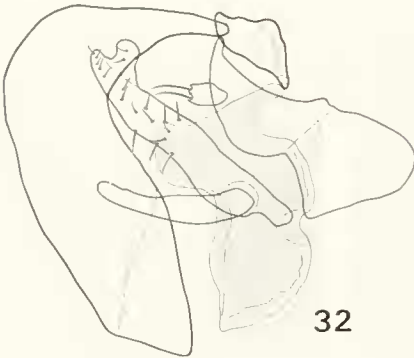
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30



31



32



33

Figs. 28-33. *Mimapsilopa dominicana*. 28, Male terminalia (epandrium, cercus, presurstylus), posterior view. 29, Same, lateral view. 30, Internal male terminalia, ventral view. 31, Postsurstyli, ventral view. 32, Internal male terminalia, lateral view. 33, Left postsurstylus, lateral view. Scale = 0.1 mm.



acutely formed angle; presurstylus symmetrical, in posterior view (Fig. 28) more or less triangular, with median surface shallowly concave on ventral half, dorsal portion with steplike angles, lateral margin shallowly and angularly arched, in lateral view (Fig. 29) more or less rectangular, especially basal half, apical half produced dorsally on dorsal surface, bifurcate with rounded U-shaped emargination, ventral margin opposite dorsal emargination with shallow indentation; postsurstyli asymmetrical (Fig. 31–33), setulose on lateral surfaces, both about  $3\times$  longer than wide, each with a median, rodlike process that extends from near base; left postsurstylus (Figs. 31, 33) with posterior surface on apical third concave, forming a digitiform, parallel-sided, bluntly rounded, apical process; right postsurstylus (Fig. 31–32) becoming wider at apical fourth, apex shallowly bifurcate; subepandrial plate in ventral view broadly U-shaped, basal portion nearly flat; aedeagal apodeme in lateral view irregularly triangular, external margin forming nearly a right angle, median margin shallowly produced toward attachment with hypandrium; aedeagus (Figs. 30, 32) longer than wide, dorsal margin with 2 symmetrically sided emarginations, basal one deeper, pocketlike, apex shallowly arched to a posteroventral point, ventral surface with a wide, moderately shallow, irregular-sided emargination, basal surface shallowly concave; pregonite (Fig. 32) a small sclerite bearing 2 long setulae; hypandrium deeply pocketlike, in lateral view angulate, narrowed basally at attachment with aedeagal apodeme, becoming wider toward anterior margin.

Type material.—The holotype  $\delta$  is labeled "DominicanRp.LaVega: nr.Jarabacoa, Salto Guasara, 19°04.4'N, 70°42.1'W, 680m, 9 May 1995, Wayne N. Mathis." The holotype is double mounted (minuten in block of plastic), is in excellent condition, and is deposited in the USNM. The allotype female and six paratypes (4  $\delta$ , 2  $\text{♀}$ ; USNM) bear the same label data as the holotype. Other paratypes are as follows: *DOMINICAN REPUBLIC. La Vega:*

Jarabacoa (6.5 km NE; 1700 ft; banana trap), 28 Jul 1991, D. A. Grimaldi, J. Stark (6  $\delta$ , 1  $\text{♀}$ ; AMNH, TZ); Salto de Jimenoa (19°06'N, 70°35.9'W; 575 m), 20 May 1995, W. N. Mathis (7  $\delta$ ; USNM).

Distribution.—*Neotropical*: West Indies (Dominican Republic).

Etymology.—The specific epithet, *dominicana*, refers to the island where this species is apparently endemic.

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